

### CLAIMS

What is claimed is:

1. A method comprising:  
dividing a plant output signal into a plurality of output subband signals;  
digitizing the first output subband signal over a first time interval;  
digitizing the second output subband signal over a second time interval;  
time aligning the digitized output subband signals in the first and second intervals with an estimated output signal derived from a plant input signal; and  
performing an adaptive equalization process using the time aligned output subband and estimated output signals.
2. The method of claim 1 further comprising:  
translating the first output subband signal to a first lower frequency prior to digitizing; and  
translating the second output subband signal to a second lower frequency prior to digitizing.
3. The method of claim 2 wherein the first and second lower frequencies are the same and the translating of the first and second subband signals is performed by mixing the first and second subband signals with oscillator signals that are locked to the same oscillator reference signal
4. The method of claim 1 wherein the plant is a LINC RF amplifier.
5. The method of claim 1 wherein the first and second intervals do not overlap.
6. An apparatus comprising:  
an adaptive equalizer coupled to enhance a quality of an output signal; and  
a tunable receiver to select different ones of a plurality of output subband signals that make up essentially an entire spectrum of the output signal, and in response provide as feedback to the adaptive equalizer samples of the selected output

subband signals to cover essentially the entire spectrum of the output signal, the receiver having a bandwidth less than that of the output signal.

7. The apparatus of claim 6 wherein the receiver is further capable of translating selected output subband signals to a lower frequency prior to digitizing said selected output subband signals.

8. The apparatus of claim 6 wherein the receiver and the equalizer are further capable of time aligning digitized selected output subband signals with an estimated output signal and using the time aligned output subband and estimated output signals to perform an adaptive equalization process.

9. The apparatus of claim 6 wherein the receiver includes an A/D converter coupled to digitize the output signal and a tunable digital filter coupled to filter the digitized output signal and in response provide selected ones of the plurality of output subband signals.

10. The apparatus of claim 6 further comprising:  
a linear amplifier having a modulator to generate a pair of constant-amplitude phase-modulated components in response to the input signal, a pair of channels which include (1) a pair of power amplifiers coupled to amplify the components, respectively, and (2) the adaptive equalizer coupled to make amplitude and phase corrections in or both of the components, and a combiner to provide the output signal by combining the amplified components.

11. The apparatus of claim 8 wherein the receiver includes a mixer coupled to translate the output subband signals using a plurality of oscillator signals that are locked to the same oscillator reference signal.

12. An appartus comprising:

means for modifying a transfer function of a plant;

means for dividing an output signal of the plant into a pluality of frequency subband signals;

means for weighting the plurality of frequency subband signals to remove unwanted transient and spectral signal components; and

means for adaptively controlling the plant transfer function modifier means based on processing the weighted plurality of frequency subband signals to enhance a plurality of performance parameters of the plant.

13. The apparatus of claim 12 wherein the dividing means includes means for sequentially measuring each of the plurality of subband signals.

14. The apparatus of claim 12 further comprising:

means for frequency down converting the plurality of subband signals prior to processing by the adaptive control means.

15. The apparatus of claim 12 further comprising:

means for digitizing the plurality of subband signals prior to processing by the adaptive control means, said adaptive control means being capable of digitally processing the plurality of subband signals to control the plant transfer function modifier means.